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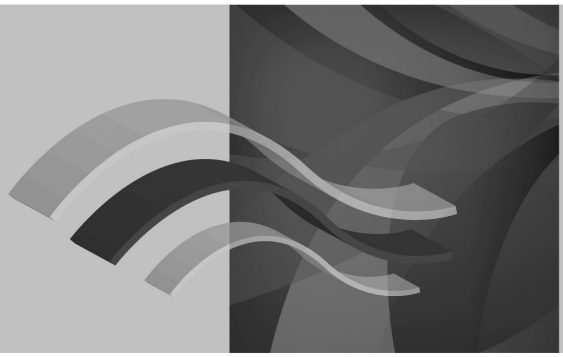

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SELECTED PROBLEMS OF AUCTIONING THE GREENHOUSE GAS EMISSION ALLOWANCES

Abstract: During the third trading period (2013–2020), the EU ETS participants will not be assigned the transferable greenhouse gas (GHG) emission allowances but instead will have to – with some exceptions and deferments – buy them at auctions. The aim of this article is to define the concept of an auction, to specify the criteria that prompted selection of this method for allocating GHG emission allowances, with due regard to their strengths and weaknesses, and to identify the measures of success of the practical application of this method. For this purpose, a review of various definitions of an auction was conducted, followed by a brief comparative analysis of methods for the allocation of GHG emission allowances and a theoretical analysis of the efficiency and effectiveness of allowances auctioning, with various scenarios for the issuing process.

Keywords: auction, grandfathering, greenhouse gases, allocation, emission allowances.

1. Introduction

In practice, various types of auctions have been used since the ancient times. Nowadays the online environment allows for auction-based trading in almost any goods, both mass-produced and unique. Auctions perform all the universal functions of marketplace in an economy, namely:

– price-setting – they allow the determination of prices for the goods in question,
– allocation – they result in transfers of funds, ownership, etc.,
– integration – they create specific relationships in the market between producers, sellers, buyers and intermediaries,
– identification – auction results indicate the price equilibrium and supply-demand relationships and provide the basis for identification of market trends,
– business cycle barometer.

No wonder that they are more and more widely used to build the primary market for greenhouse gas (GHG) emission allowances trading under the EU ETS. This observation was the basis for the selection of auctions as the subject of this article. The author aims to define the concept of an auction, to specify the criteria that

prompted selection of this method for allocating emission allowances, and to identify the measures of success of its practical application. The article consists of three parts which consecutively deal with a review of meanings assigned to the auction concept, the reasons for which the European Union has decided to use auctions to allocate emission allowances, a review of the advantages and disadvantages of this method, and finally with its success indicators.

2. The auction concept

Auction (from Latin *auctio*, *-onis* 'an increasing sale, auction, public sale' stemming from *augere* 'to increase')[1] is one of the oldest forms of exchange of goods and services. The dictionary definition of the word is 'a public sale in which its object is sold to the entity offering to pay the highest price' [*Słownik wyrazów*… 1971, p. 58]. The Polish Civil Code states that an auction, alongside a tender, is a method of concluding a contract that is aimed at selecting a contractor making the best bid, evaluated as such in accordance with the criteria set by the party interested [Ustawa z dnia 23 kwietnia 1964…, Art. 70]. A contract shall be concluded by means of an auction at the moment of knocking down a bid. A bid made in the course of the tender shall cease to be binding when another bid is chosen or when the tender is closed with no bid having been chosen, unless the terms of the tender have stipulated otherwise. On the other hand, the concept of an auction has three different definitions assigned in the professional literature. One definition states that an auction is a type of institution, another one that it is a type of market, and in the third one it is a form of market forces play.

Auction as an institution is interpreted to be a form of market organization, considered the classical structure of a formal market model, whose attribute is conduction of sale-purchase transactions:

– at a specific place,
– at a specific time,
– pursuant to the rules and practices set in specific regulations [Dziuba 2008, p. 12].

From this perspective, an auction differs from other formal market models, and especially from exchange trading and tendering. It differs from exchange trading primarily in being applied also for non-standard and non-homogeneous goods that must be viewed to determine their quality and value. Therefore, some goods are presented at an auction for the potential buyers to inspect, mostly in the form of samples or entire batches, called lots. The lack of standardization requirement makes auctions practicable to sell both individual unique items (e.g. paintings, antiques, porcelain, etc.) and mass products that are non-homogeneous in terms of quality (e.g. coffee, tea, flowers, or animal furs). In addition, exchange trading is a form of

[1] www.etymonline.com/index.php?term=auction&allowed_in_frame=0.

regulated market, with multiple sellers and multiple buyers – its main objective is to bring together at a single place and time the multiple sellers and buyers, while with an auction there is usually a single seller and multiple buyers. An auction also differs from the tendering procedure as a specific institution, as it does not include the negotiation component. As indicated by the Polish Public Procurement Law [Ustawa z dnia 29 stycznia 2004...], these components are built into the tendering mechanisms.

An "auction" may also refer to a specific, located market. In this meaning, the term may be used, for instance, with reference to an auction of a specific painting, conducted last month at a particular auction house [Kuśmierczyk 2010, p. 14].

Auction can also be treated "as a game, and its participants as players whose goal is achieving the best bid price (or ask price, with double-sided auctions) of an item" [Drabik 2010, p. 75]. In such situations, auction rules may be applied to exchange trading in commodities, such as energy trading at energy exchange floors, as well as to tenders where the organizer is able to control and valuate the quality of goods purchased. In particular, at a predetermined level of quality parameters, where the only selection criterion is price, the tender becomes a reverse auction (procurement auction) in which the winning participant is the one offering the lowest price.

In practice since the ancient times multiple auction types have been used as classified by various criteria, e.g. the auction object, objective, price determination rules, participant eligibility rules, etc. One of the "novel" items auctioned in Poland are the greenhouse gas emission allowances.

3. Premises of auctioning the GHG emission allowances

Allocation of emission allowances can be conducted using any of the three methods:
- output-based,
- grandfathering,
- auctioning.

The output-based method of allocation is based on the past or present production volumes, and allocation is proportional to emissions per unit of production. In a way, it amounts to subsidizing certain types of production, offering an incentive for a production increase, and is not directly aimed at achieving the emission reduction targets [Malik 2006, p. 86].

On the other hand, grandfathering involves free allocation of transferable allowances on the basis of existing emission levels. This used to be the primary method of allocating GHG emission allowances under the EU Emissions Trading Scheme (EU ETS) during the first and second trading periods. During the first trading period (2005–2007) auctions were allowed to allocate only up to 5% of the awarded total number of allowances [Dyrektywa Parlamentu Europejskiego i Rady 2003/87/WE 2003/87/EC...] and only up to 10% during the second period (2008–2012).

Allocation through auctioning involves selling emission allowances only periodically or years in advance to their actual use. During the third trading period

(2013–2020), the EU ETS participants will be made to buy transferable allowances at auctions and will stop receiving them free of charge. The exceptions to this rule will be the energy-intensive industries heavily exposed to carbon leakage, other sectors (in accordance with the principle of phased transition away from free allocation of allowances) and the power engineering sector in some Member States eligible for the derogation [Dyrektywa Parlamentu Europejskiego i Rady 2009/29/WE...]. It is estimated that in the 2013–2020 period auctions will cover about 50% of transferable GHG emission allowances from stationary installations and ca. 18% of aviation allowances.

The basic premise of a gradual shift from grandfathering to auctioning in the allocation of transferable emission allowances under EU ETS are the negative experiences with the former method. Its use is associated with both legal risks and the risk of informational asymmetry. The legal risk arises from the lack of uniform standards of accounting for transferable emission allowances. Following a failed 2004 attempt to establish such standards (IFRIC 3, soon withdrawn), in 2008 the International Accounting Standards Board (IASB) launched a joint project with the US Financial Accounting Standards Board (FASB) to develop comprehensive guidelines on accounting for emission allowances [Lovell et al. 2010, p. 5]. In various EU countries they are recognized as property rights, moral rights or a form of license. This gives rise to problems with recognizing them in the balance sheet and the related taxation problems, especially in terms of income tax.

As already stated above, grandfathering is in its essence an administrative method (with some negotiation components) of allocating transferable emission allowances at the Community and national levels. From the theoretical point of view, a market price of emission allowances held by an entity should be close to the marginal cost of corresponding emission reduction. The point is that the EU and national administrations do not have sufficient information on the corporate cost of achieving target reductions of GHG emissions from stationary installations and aviation emissions and therefore are not prepared to take informed decisions about the size of transferable allowances pool which should be allocated across countries and sectors during individual trading periods. This case of informational asymmetry makes a fertile ground for allowances capture. This is a process of interaction between the regulator and the regulated, the latter trying to use their information superiority to influence the regulator's choices in a manner favourable to their own interests, even if contrary to the public interest which in this case is to minimize the total cost of achieving GHG reduction targets for subsequent trading periods. This leads to serious errors in the EU and national supply policies for transferable allowances, resulting in a price decrease in the secondary market. Such low prices do not make a sufficient incentive to undertake reduction measures. Those were precisely the mistakes made in the first two trading periods of EU ETS. In addition, the administrative allocation of transferable allowances is not transparent and relatively expensive as it requires employing many experts from different EU countries.

4. Advantages and disadvantages of emission allowances auctioning

The scientific literature presents a number of advantages of auctioning transferable GHG emission allowances. The most obvious of these are the simplicity and general clarity of auctioning. Auctions are considered to be the most transparent mechanism for conducting commercial transactions.

Allocation of allowances by an auction facilitates implementation of the core principle of environmental policies in the European Union and in Poland – the "polluter pays" principle. It assumes that the cost of pollution emissions must be borne by the emitter and calculated into the price of their products/services. Where the allowances are distributed free of charge, this principle is violated.

Auctioning of transferable allowances promotes avoidance of such adverse consequences of no-cost distribution. The negative effects arise from:

– inefficient and uncompensated market signals, especially in the energy sector which is the largest emitter of GHG,
– possibility of obtaining an allocation exceeding the actual needs,
– problems arising from the allocations to both the emerging emitters and those being pushed out of the market [Ramseur 2010, p. 54].

Finally, allocation of tradable allowances by auctioning can potentially minimize the social cost of climate policies implementation. This is so because the auction proceeds may be used to significantly reduce the overall cost of the cap-and-trade system to the society. Under Article 10(3) of Directive 2009/29/EC individual Member States are free to determine how the revenues from auction sale of allowances will be used, save that at least 50% of the revenues should be earmarked for at least one of the nine goals set forth in the Directive: renewable sources of energy, carbon capture and storage (CCS), afforestation and CO_2 sequestration in forests, energy efficiency, avoidance of deforestation and increase in afforestation and reforestation in the developing countries, incentives to switch to low emission and public forms of transport, contributions to the Global Energy Efficiency and Renewable Energy Fund and the Adaptation Fund and covering the administration and management expenses of the EU ETS. The remaining sums may be used for any other purposes, productive or non-productive. For example, governments may use them to reduce the income tax on labour which would not only compensate the households for a rise in prices but also increase employment and enhance the country's competitive advantage at international markets. They may also use the funds to reduce VAT or the excise duty on energy, which would ease household finances but the positive effects of such a move would be relatively small. Governments may also use the income from auctions for non-productive purposes – social transfers or investment subsidies – even if the latter all too often encourage investment in projects of doubtful viability.

On the other hand, a disadvantage of emission allowances auctioning is its susceptibility to market trend reversals. A downturn results in lower revenues from

auctions, undermining its aforementioned advantage. Another challenge to auctioning is levelling the ground for large, small and medium-sized businesses through free, fair and equal access to allowance auctions.

5. Success metrics for GHG emission allowances auctioning

The measures of success of any emission allowances auction are both its effectiveness and the size of income generated as a result. An auction is effective when the allowances are allocated to just those entities for which they have the largest economic value. Other auction attributes which may be considered its success metrics include:

– prices set at the equilibrium level. In any cost-effective system of emission allowance trading the prices should reflect or be very close to the marginal cost of emission reduction – i.e. the cost of reducing the last, most expensive ton, expressed in equivalent tons of carbon dioxide. An auction is considered effective if it aids determination of an allowance price at a level close to the marginal cost of reduction;
– transparency, integrity and money-laundering prevention. The auction rules should be available to all parties interested and should not favour any of the participants. They should determine the auction participant eligibility criteria, the method of deciding the number of auction sessions, the requirements on participant registration and identification, the method of determining the settlement price, the method of results announcement, the delivery terms for allowances auctioned, etc. All the auction processes should be constantly monitored. The monitoring entity should be appointed by a special procedure that allows selection of a candidate meeting the top professional and ethical standards and not suffering from a conflict of interests;
– effective protection against market manipulation. Regulations and other auction rules should discourage or prohibit any auction behaviour that would hinder auction efficiency, such as collusions on bid values which could artificially bring down the allowance price. It is important to prevent any purely speculative processes that have nothing to do with the objective of maintaining the allowance market liquidity;
– optimisation of transactional and administrative costs. Prohibitive costs may significantly reduce the auctioning mechanism profitability and put small and medium-sized enterprises at a disadvantage.

Obviously, the success of emission allowances auctioning depends on the choice of auction mechanism options: the auction format and method of determining the settlement price, the auction model, the auction organization system, the instruments securing proper conduct of the auction, the method of introducing non-competitive bids, etc. Some auction models may, e.g., generate a variety of administrative costs, favour generation of auction proceeds, or allow a high degree of purchase monopolization by the powerful players from the financial sector. For example, in

theory a discriminatory-price auction should yield better results in terms of maximizing the auction proceeds. But in reality the proceeds from a uniform-price auction may come close to or even exceed those from a discriminatory-price auction. The reasons for this are the phenomena of 'winner's curse' and 'bid shading'. The former occurs when the successful bidder acquires the tendered object at a price far exceeding those offered by the other bidders. He then runs the risk of a substantial loss when trying to resell on the secondary market. The latter phenomenon is manifested in the bidders' reluctance to bid the actual value of the item tendered for fear of overpaying [*Aukcje uprawnień*..., p. 21]. Another example is related to the choice of an auction organization system. The organization system may rely on the existing exchange markets (climate, securities), platforms operating within a dealer system (primary participants model), or mandates for auction organization issued to public institutions or private companies. British experts state that the latter solution is relatively the most expensive and time-consuming. It can therefore be postulated that the choice of auction mechanism should be supported by in-depth analyses of various aspects of such mechanisms.

6. Conclusions

More than seven-years experience in the European Emissions Trading System and its primary market component provides a basis for reflection on the choice of allowances allocation method. The widespread use of grandfathering has led to serious flaws in the supply policies during the two initial trading periods that prevent the carbon market from generating a strong enough incentive to undertake any emission reduction projects due to depreciation of the emission allowances. For this reason, within the European Parliament there are intensive discussions on backloading – a partial withdrawal of allowances from the market. They redirect the attention of politicians and scientists towards a method of GHG emission allowances auctioning that is considered more effective both environmentally and economically. The selected problems related to this method seem indicative of the need for more in-depth research and an analysis on a variety of options for its practical application.

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WYBRANE PROBLEMY AUKCJI UPRAWNIEŃ DO EMISJI GAZÓW CIEPLARNIANYCH

Streszczenie: W trzecim okresie rozliczeniowym, obejmującym lata 2013–2020, uczestnicy EU ETS, zamiast otrzymywać uprawnienia zbywalne do emisji gazów cieplarnianych, będą zmuszeni do ich kupna na aukcjach, z pewnymi wyjątkami i odroczeniami. Celem artykułu jest zdefiniowanie pojęcia aukcji, wskazanie przesłanek wyboru tej metody do alokacji uprawnień do emisji GHGs, ze zwróceniem uwagi na ich wady i zalety, oraz określenie miar sukcesu jej zastosowania w praktyce. Aby osiągnąć te cele, dokonano przeglądu definicji aukcji, przeprowadzono krótką analizę porównawczą metod alokacji uprawnień do emisji gazów cieplarnianych oraz teoretyczną analizę skuteczności i efektywności aukcji GHGs, przy założeniu różnych opcji procesu emisyjnego.

Słowa kluczowe: aukcja, *grandfathering*, gazy cieplarniane, alokacja emisja uprawnień.